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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,869	08/21/2003	Kenji Katoh	116911	6860

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EXAMINER

TRAN, DIEM T

ART UNIT PAPER NUMBER

3748

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/644,869

Applicant(s)

KATOH ET AL.

Examiner

Diem Tran

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

The disclosure is objected to because of the following informalities:

- On page 3, line 3, "th" should be changed to --the--.
- On page 6, line 1, "ag nt" should be changed to --agent--.
- On page 6, line 2, "decreas d" should be changed to --decreased--.
- On page 7, line 2, "suppli d" should be changed to --supplied--.
- On page 8, line 1, "th" should be changed to --the--.
- On page 12, line 2, "How ver" should be changed to --However--.

Appropriate corrections are required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

***Claims 1-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Mizuno et al. (US patent 6,684,627).***

Regarding claims 1, 4, Mizuno discloses a method of purifying exhaust gas of an internal combustion engine comprising steps of:

disposing a NOx occluding and reducing catalyst (39) (see Figure 1) in an exhaust gas passage of the internal combustion engine (see col. 8, lines 3-15); purifying the NOx occluded by said catalyst by reduction with reducing components in the exhaust gas from said engine when the engine is operated at the stoichiometric air-fuel ratio or at the rich air-fuel ratio, wherein a sulfur-solidifying agent that forms a solid sulfate upon the reaction with SOx at the time of combustion is supplied to the engine to solidify the SOx in the exhaust gas thereby to prevent the SOx in the exhaust gas from being occluded by the NOx occluding and reducing catalyst, and the amount of supplying said sulfur-solidifying agent to the engine is controlled depending upon the condition of the atmosphere at said catalyst or the operating condition of the engine (see col. 2, lines 37-48, col. 8, lines 40-57).

Regarding claims 2, 3, 5, 6, Mizuno further discloses that said sulfur-solidifying agent is not supplied to the engine when the condition of the atmosphere at said NOx occluding and reducing catalyst is one for suppressing the occlusion of SOx by the NOx occluding and reducing catalyst (see col. 8, lines 50-57).

Regarding claims 7-9, Mizuno further discloses that said sulfur-solidifying agent is supplied to the engine in a decreased amount when said internal combustion engine is operated under a condition of promoting the formation of deposit in the engine due to said sulfur-solidifying agent (see col. 6, lines 35-36, col. 10, lines 65-67, col. 11, lines 1+).

Regarding claims 10, 11, Mizuno discloses a method of purifying exhaust gas of an internal combustion engine comprising steps of: disposing a NOx occluding and reducing catalyst (39) in an exhaust gas passage of the internal combustion engine; purifying the NOx occluded by said catalyst by reduction with reducing components in the exhaust gas from said engine when the engine is operated at the stoichiometric air-fuel ratio or at the rich air-fuel ratio; wherein a sulfur-solidifying agent that forms a solid sulfate upon the reaction with SOx at the time of combustion is supplied to the engine to solidify the SOx in the exhaust gas thereby to prevent the SOx in the exhaust gas from being occluded by the NOx occluding and reducing catalyst, and the amount of supplying said sulfur-solidifying agent to the engine is controlled depending upon the NOx occluding capability of said NOx occluding and reducing catalyst (see col. 8, lines 39-67).

### **Conclusion**

Any inquiry concerning this communication from the examiner should be directed to Examiner Diem Tran whose telephone number is (703) 308-6073. The examiner can normally be reached on Monday -Friday from 8:00 a.m.- 5:30p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (703) 308-2623. The fax number for this group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

Application/Control Number: 10/644,869  
Art Unit: 3748

Page 5

DT  
April 19, 2004



Diem Tran  
Patent Examiner  
Art unit 3748



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SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700